

The application as presented is believed to be in allowable condition. Applicants note with appreciation that claims 4 and 5 are indicated to contain allowable subject matter.

A. Objection to the Drawings

The Office Action states that the drawings are objected to under 37 C.F.R. 1.83(a) because they fail to show descriptive labeling associated with all the blocks in Fig. 1. Applicants have amended Fig. 1 as shown in red on the attached sheet to add descriptive labeling. Fig. 1 is believed to now comply with 37 C.F.R. 1.83(a). Accordingly, withdrawal of the objection is respectfully requested.

B. Rejection under 35 U.S.C. §112

The Office Action rejects claim 1 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the Office Action states that the addition of the word "type" on line 1 of claim 1 results in claim 1 being indefinite.

Applicants have amended claim 1 to remove the words "of the type" on line 1. Claim 1, as amended, now recites "an electromagnetic transponder including a parallel oscillating circuit..." and is believed to be clear enough to satisfy the statute. Accordingly, withdrawal of the rejection of claim 1 is respectfully requested.

C. Rejections Under 35 U.S.C. §102

The Office Action rejects claims 1, 8, 9, 11 and 12 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,446,049 (Janning). Applicants respectfully traverse this rejection.

Janning discloses a method and apparatus for wirelessly transmitting digital information in a substantially electrically shielded environment. Referring to Fig. 1, Janning discloses that when a receptacle transceiver 50 enters a coverage area of a dispenser transceiver 22 and is sufficiently close to the dispenser transceiver 22 to permit reception of an interrogation signal, the receptacle transceiver 50 transmits information to the dispenser receiver 22 in the form of a radio signal. According to Janning, by using low frequency magnetic coupling to convey the information instead of high frequency electromagnetic coupling, the receptacle transceiver 50

can be located within a substantially electrically shielded environment that may be physically associated with the receptacle 51 (col. 9, lines 25-56). According to Janning, the receptacle transceiver 50 preferably operates in half-duplex mode and includes a memory device 301 for storing digital information, such as billing information, a processor/data generator 303, a phase modulator 305, a tuned circuit 307 and an antenna 309. Referring to Figs. 3 and 4, during a dispenser transceiver polling cycle, the antenna 309 receives an interrogation signal via a radio channel 55 and passes the signal to the tuned circuit 307 for filtering and averaging (col. 11, lines 32-50). The tuned circuit 307 comprises a resonant circuit which is formed from a resistor 515, capacitors 537 and 538, transformer 558 and diode 559. The resonant circuit includes the antenna 309 which is formed by the transformer 558 (col. 14, lines 48-52). Janning further discloses that the antenna 309 transmits an FM signal via magnetic field at a carrier frequency of about 8.192 kHz and that the use of both a low frequency carrier and magnetic coupling allows the transmitting signal to escape substantially electrically shielded enclosures (such as automobile trunks, automobile hoods and automobile fuel inlets), and also provides for a fairly well constrained transmission range due to the mathematical relation that magnetic coupling decreases in proportion to the cube of the distance from the magnetic source (col. 25, lines 1-9). In addition, Janning discloses that the dispenser transceiver 22 may be provided with a jamming circuit that generates a jamming signal at the receive frequency of the dispenser's receiver to prevent the receiver from receiving spurious radio signals. Thus, when only the jamming signal is detectable (i.e. has a strong enough signal strength to prevent reception of any other signals at the dispenser receiver), the system presumes that the receptacle 51 is not within a predetermined proximity of the dispenser; whereas, when the radio signal transmitted by antenna 309 of the receptacle transceiver 50 in or near the receptacle is detectable (i.e. has a sufficient signal strength to be detected over the jamming signal), the system determines that the receptacle 51 is within sufficient proximity of the dispenser (for example less than 2 meters) to permit vending of the product (col. 26, lines 55-67).

The Office Action states that, regarding claim 1, Janning discloses an oscillating circuit wherein the "components of the oscillating circuit of the transponder are sized so that the coupling coefficient between respective oscillating circuits of the terminal end of the transponder rapidly decreases when the distance separating the transponder from the terminal becomes smaller than a predetermined value," as is recited in Applicants' claim 1. In particular, the

Office Action refers to col. 24, line 66 to col. 25, line 14 of Janning where Janning discloses that magnetic coupling decreases in proportion to the cube of the distance from the magnetic source, and col. 26, lines 55-57 of Janning where Janning discloses the receptacle 51 is within sufficient proximity (less than 2 meters) of the dispenser. Applicants point out that these portions of Janning in fact disclose the opposite to what is recited in Applicants' claim 1. Namely, Janning discloses that the coupling coefficient (magnetic coupling) decreases as the distance between the transceivers increases such that the system operates only when the receptacle transceiver is within sufficient proximity to the dispenser transceiver. By contrast, Applicants' claim 1 recites that the coupling coefficient decreases rapidly when the distance separating the transponder from the terminal becomes smaller than a predetermined value. Thus, Applicants' claim 1 recites a system wherein the coupling between the transponder and the terminal decreases as the distance between the transponder and the terminal decreases (becomes smaller than a predetermined value), whereas Janning discloses a system where coupling decreases as the distance between the two transceivers increases. Therefore, Janning does not disclose or suggest a transponder wherein components of the oscillating circuit of the transponder are sized so that the coupling coefficient between the respective oscillating circuits of the terminal and the transponder rapidly decreases when the distance separating the transponder from the terminal becomes smaller than a predetermined value, as is recited in Applicants' claim 1. Accordingly, Applicants' claim 1 is not anticipated by Janning and withdrawal of the rejection of claim 1 is respectfully requested.

Similarly, Applicants' claim 8 recites a terminal ... including a series oscillating circuit for generating the electromagnetic field, the series oscillating circuit being sized so that the coupling coefficient between the respective oscillating circuits of the terminal and of the transponder strongly decreases when the distance separating the transponder from the terminal becomes smaller than a predetermined value. As discussed above, this limitation is not disclosed nor suggested by Janning. Accordingly, withdrawal of the rejection of claim 8 is respectfully requested.

Dependent claims 9, 11 and 12 depend, either directly or indirectly, from one of claims 1 and 8 and are therefore allowable for at least the same reasons as discussed for their respective base claim. Accordingly, withdrawal of the rejection of claims 9, 11 and 12 is respectfully requested.

**D. Rejection Under 35 U.S.C. §103**

The Office Action rejects claims 2, 3, 6, 7 and 10 under 35 U.S.C. §103(a) as being unpatentable over Janning. Applicants do not agree that the basis of rejection of the dependent claims set forth in the Office Action is proper. However, each of dependent claims 2, 3, 6, 7 and 10 depends, either directly or indirectly, from one of independent claims 1 and 8. As discussed above, Janning fails to disclose or suggest all the limitations recited in either of independent claims 1 and 8. Therefore, each of dependent claims 2, 3, 6, 7 and 10 is patentable over Janning for at least the same reasons as its base claim. Accordingly, withdrawal of the rejection of claims 2, 3, 6, 7 and 10 is respectfully requested.

**CONCLUSION**

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,

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Docket No. S01022.80394.US  
Date: April 4, 2003  
x04/04/03

**MARKED-UP CLAIMS**

Claims 1, 2 and 4-10 have been amended as follows:

1. (Amended) An electromagnetic transponder [of the type] including a parallel oscillating circuit adapted to being excited by a series oscillating circuit of a read/write terminal when the electromagnetic transponder enters [the] an electromagnetic field of the read/write terminal, wherein [the] components of the parallel oscillating circuit of the electromagnetic transponder are sized so that [the] a coupling coefficient between [the] respective oscillating circuits of the terminal and of the electromagnetic transponder rapidly decreases when [the] a distance separating the electromagnetic transponder from the terminal becomes smaller than a predetermined value.

2. (Amended) The electromagnetic transponder of claim 1, wherein said predetermined value is 5 cm.

4. (Amended) The electromagnetic transponder of claim 1, wherein an inductance of the parallel oscillating circuit is chosen in accordance with the following relation:

$$k_{opt} = \sqrt{\frac{R1L2}{R2L1}},$$

where  $k_{opt}$  represents the coupling coefficient providing a maximum voltage across the parallel oscillating circuit, where  $R1$  represents [the] a series resistance of the series oscillating circuit, where  $R2$  represents [the] an equivalent resistance of the transponder brought in parallel on inductance  $L2$ , and where  $L1$  represents [the] an inductance of the series oscillating circuit.

5. (Amended) The electromagnetic transponder of claim 1, having [an] a parallel oscillating circuit wherein [the] components are sized based on an operating point at a median distance of a desired operating range, chosen to correspond to a coupling coefficient as close as possible to an optimal coupling coefficient in accordance with the following relation:

$$V_{2\max(kopt)} = \sqrt{\frac{R_2}{R_1}} \frac{V_g}{2},$$

where  $V_{2\max}$  is [the] a voltage across the parallel oscillating circuit for [the] optimal coupling between the oscillating circuits,  $R_1$  is [the] a series resistance of the series oscillating circuit,  $R_2$  is [the] an equivalent resistance of the transponder brought in parallel on its oscillating circuit, and  $V_g$  is [the] an excitation voltage of the series oscillating circuit.

6. (Amended) The electromagnetic transponder of claim 1, wherein [the] a number of turns of [the] an inductance of [its] the parallel oscillating circuit is smaller than 3.

7. (Amended) The electromagnetic transponder of claim 1, wherein [the] respective values of [the] a capacitance and of [the] an inductance of the parallel oscillating circuit range is between 20 and 500 pf and between 0.1 and 10  $\mu$ H.

8. (Amended) A terminal for generating an electromagnetic field adapted to [cooperating] cooperate with at least one transponder when said at least one transponder enters [this] the electromagnetic field, including a series oscillating circuit for generating the electromagnetic field, [this] the series oscillating circuit being sized so that [the] a coupling coefficient between [the] respective oscillating circuits of the terminal and of the at least one transponder strongly decreases when [the] a distance separating the at least one transponder from the terminal becomes smaller than a predetermined value.

9. (Amended) The terminal of claim 8, wherein [the] components of [its] the series oscillating circuit are sized to fulfill [the] operating conditions of the transponder of claim 1.

10. (Amended) The terminal of claim 9, wherein [the] an inductance of [its] the series oscillating circuit includes between 3 and 15 turns.